Exemption No. 6601

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98055-4056

In the matter of the petition of

Boeing Commercial Airplane Group **Regulatory Docket No. 28763**

for an exemption from 14 CFR § 25.571(e)(1), Amendment 25-72

GRANT OF EXEMPTION

By letter B-T111-96-1412 dated December 10, 1996, Norman I. Lee, III, Acting Manager, certification, Certifications Programs, Boeing Commercial Airplane Group, petitioned for exemption from the four-pound bird strike requirement of 14 CFR § 25.571(e)(1) from "V_C at sea level to 8,000 feet" in favor of "V_C at sea level or 0.85 V_C at 8,000 feet, whichever is greater." The petition was made for the Boeing Model 737-600/700/800 airplanes.

Sections of the FAR affected:

> Section 25.571(e)(1) requires that the airplane be capable of successfully completing a flight during which likely structural damage occurs as a result of impact with a four-pound bird at V_C at sea level to 8,000 feet.

ANM-97-014-E

Related Sections of the FAR:

Section 25.631 requires the empennage to be designed to withstand impact with an eight-pound bird at V_C at sea level. Section 25.775 requires the windshield to be capable of withstanding impact with a four-pound bird at V_C at sea level.

The petitioner's supportive information is as follows:

The petitioner based his request for this exemption on the Transport Airplane Directorate, ANM-100, letter dated December 9, 1992, which states that the FAA did not intend to make the bird strike criteria more stringent at altitude. It also states that the Transport Standards Staff agrees to look favorably upon requests for exemptions from the "V_C at 8,000 feet" requirement in § 25.571(e)(1), Amendment 25-72, until the rule can be changed in a later amendment. The airplane must be capable of successfully completing a flight during which likely structural damage occurs as a result of impact with a four-pound bird at whichever true airspeed is greater, V_C at sea level or 0.85 V_C at 8,000 feet.

The FAA finds, in this case, that action on this petition should not be delayed by publication and comment procedures because a delay in acting on this petition would be disruptive to the flying public and create a major economic burden on the manufacturer and operators. Additionally, because the public has been given the opportunity to comment on previous petitions for exemption from this same requirement, and no comments were received, the FAA finds no reason to further delay action on this exemption in order to invite public comments on this petition. One exemption is considered to apply to the three model airplanes because they are on the same type certificate.

The FAA's analysis/summary is as follows:

The petitioner has requested relief from the requirements of § 25.571(e)(1), which requires that the airplane must be capable of successfully completing a flight during which likely structural damage occurs as a result of impact with a four pound bird at V_C at sea level to 8,000 feet. The original bird strike provision was adopted by Amendment 25-45 and required the bird impact to be at "likely operating speeds from sea level to 8,000 feet." The term "likely operating speed" was open to interpretation and causing confusion so the FAA proposed a revision that would have required a specific structural design speed. The proposal was published as Notice 84-21, 49 FR 47358, dated December 3, 1984. The FAA proposed a single speed of V_C at sea level, which was consistent with other bird strike requirements in §§ 25.631 and 25.775. One commentor to the proposal pointed out that an artificially low value of V_C at sea level could be established for the sole purpose of reducing the bird impact speed.

This would lead to unconservative impact airspeeds at lower altitudes where bird impacts are most likely. The FAA agreed and revised the final rule accordingly.

Most airplanes, except those with an artificially low V_C at sea level, have a near constant value of V_C knots equivalent air speed (KEAS) from sea level to 8,000 feet. The same equivalent airspeed at 8,000 feet gives about a 13% increase in true airspeed above that at sea level. In Amendment 25-72, the FAA did not intend to make the rule more stringent at 8,000 feet than at sea level. The intent was to prevent an applicant from selecting an unrealistic value of V_C at sea level. In terms of true airspeed, 0.85 V_c at 8,000 feet is equivalent to V_c at sea level.

In conclusion, the FAA has determined that the Boeing Model 737-600/700/800 airplanes, upon compliance with the stated requirements, will meet the intent in adopting the regulations with respect to the bird impact velocities defined in § 25.571(e)(1), Amendment 25-72.

In consideration of the foregoing, I find that a grant of exemption is in the public interest and will not affect the level of safety provided by the regulations. Therefore, pursuant to the authority contained in § 49 U.S.C. 40113 and 44701, formerly §§ 313(a) and 601(c) of the Federal Aviation Act of 1958 as amended, delegated to me by the Administrator (14 CFR 11.53), the Boeing Commercial Airplane Group is hereby granted an exemption from § 25.571(e)(1) of the Federal Aviation Regulations for the Boeing Model 737-600/700/800 airplanes provided the airplane design complies with the intent of § 25.571(e) utilizing an impact with a 4 pound bird at "V_C at sea level or 0.85 V_C at 8,000 feet, whichever is greater."

This grant of exemption will remain in effect unless superseded or rescinded.

Issued in Renton, Washington, on April 8, 1997

/s/
Darrell M. Pederson
Acting Manager
Transport Airplane Directorate
Aircraft Certification Service, ANM-100